

Paracetamol poisoning

Proforma to guide ED management of ORAL ingestions in adults

Includes overdoses due to therapeutic excess

Manage and document any co-ingestions separately

Disclaimer:
This is a clinical template; clinicians should always use judgment when managing individual patients

Re-approved by EDGC on 25Sep24
Review due Sep27 · Trust Ref: C3/2016

Patient details

Full name: _____
DoB: _____
Unit number: _____

(use sticker if available)

① Sources of further advice

Go to toxbase.org or toxbasebackup.org (find login details on the 'Drugs and Fluids' guidance page of the UHL Connect ED site) for additional management advice about Paracetamol OD, e.g. by IV/other routes

National Poisons Information Service (NPIS) is available anytime if remaining uncertainties after advice from ED senior
0344 892 0111

Liver unit referrals should be directed to the 'liver unit medical registrar' at the **Queen Elizabeth Hospital Birmingham** (see criteria in box 6)
0121 627 2000

② Significant ingestion?

Work out ingested dose in mg/kg

Total Dose: mg
Patient weight: kg = mg/kg

Disregard any additional kilos in excess of 110kg
If pregnant, enter pre-pregnancy not actual weight

Yes, as one of the below

Ingested dose > 75 mg/kg/24h
Reported dose unreliable

No, as none of the above

③ NAC treatment needed?

YES, as one or more of the below

- 4-15h after single ingestion, level on or above treatment line
- >15h after single ingestion, paracetamol is still detectable
- >4h after last tablets of a staggered ingestion taken, paracetamol is detectable
- >4h after an ingestion of uncertain timing, paracetamol is detectable
- INR > 1.3 *
- ALT > 53 IU/L *

NO, as none of the above

* Call NPIS (see box 1) for advice if INR or ALT are known to be chronically raised for other reasons (e.g. due to warfarin or chronic liver disease) AND paracetamol cannot be detected or plasma level below the treatment line in box 5; patient **MAY** not need NAC

④ Single ingestion > 24h ago

Obtain INR, venous gas, U&E, LFT, Paracetamol level and FBC

If jaundice or liver tenderness

→ Start NAC immediately (**DO NOT** wait for blood results) and admit to AMU.
NB: check if referral to a liver unit is required (see box 6 for criteria).

Otherwise await blood results

If NAC treatment needed (see box 3)

→ Start NAC and admit to AMU
NB: check if referral to a liver unit is required (see box 6 for criteria)

If serum creatinine is abnormal (i.e. new rise above upper limit of normal or >10% from previous abnormal value)
→ Admit to AMU

If none of the above
Patient is not a risk of liver toxicity

Note times & tasks in the boxes below

DD/MM/YY
Current date

HH:MM
Current time

DD/MM/YY
Date of ingestion

Time of ingestion (24h clock)

Single ingestion; all tablets at
 Staggered; last tablets taken at

HH:MM
hours passed since

HH:MM
Timing unclear

HH:MM
Sample needed at

Blood sampling delegated to

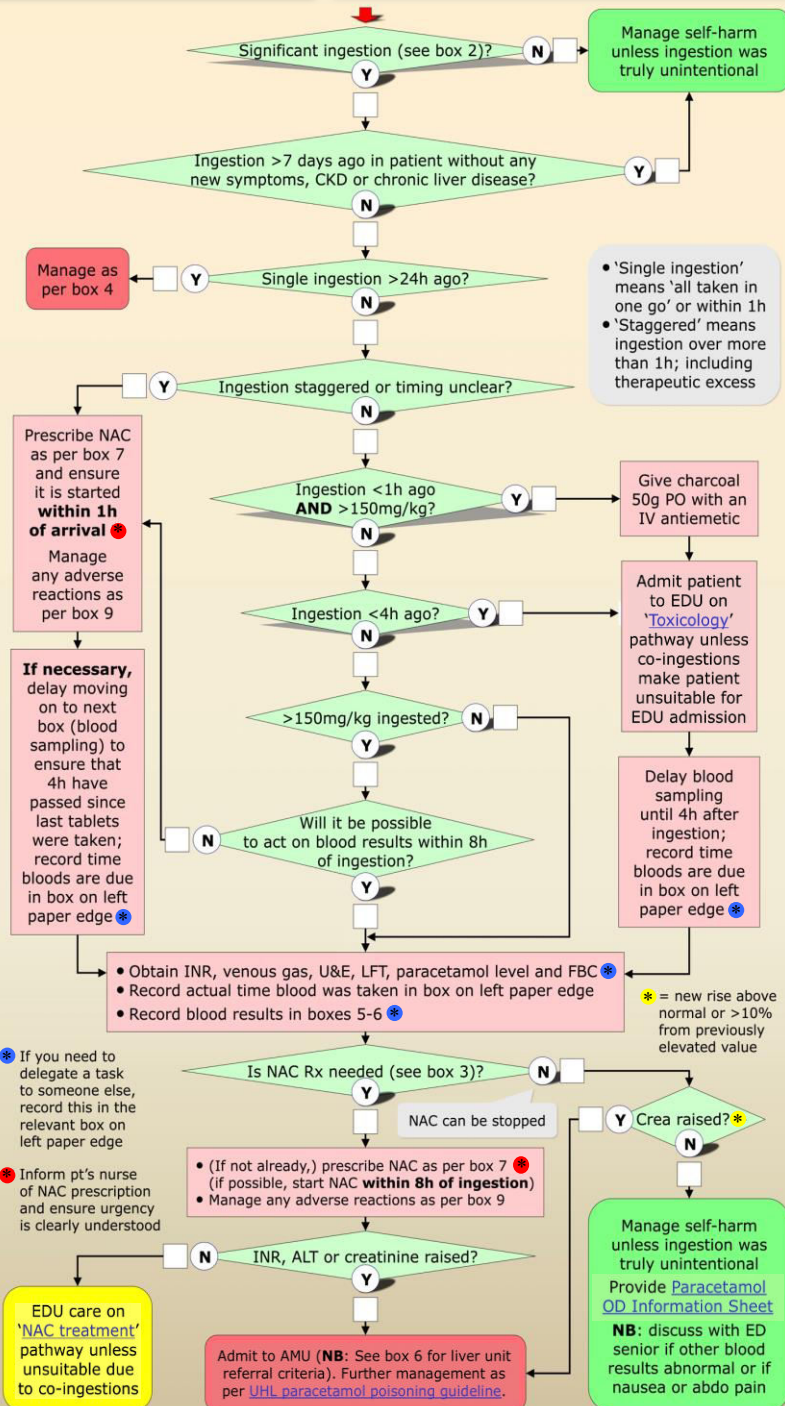
HH:MM
Sample taken at

Result checking delegated to

HH:MM
Start NAC before

NAC administration delegated to

HH:MM
NAC started at



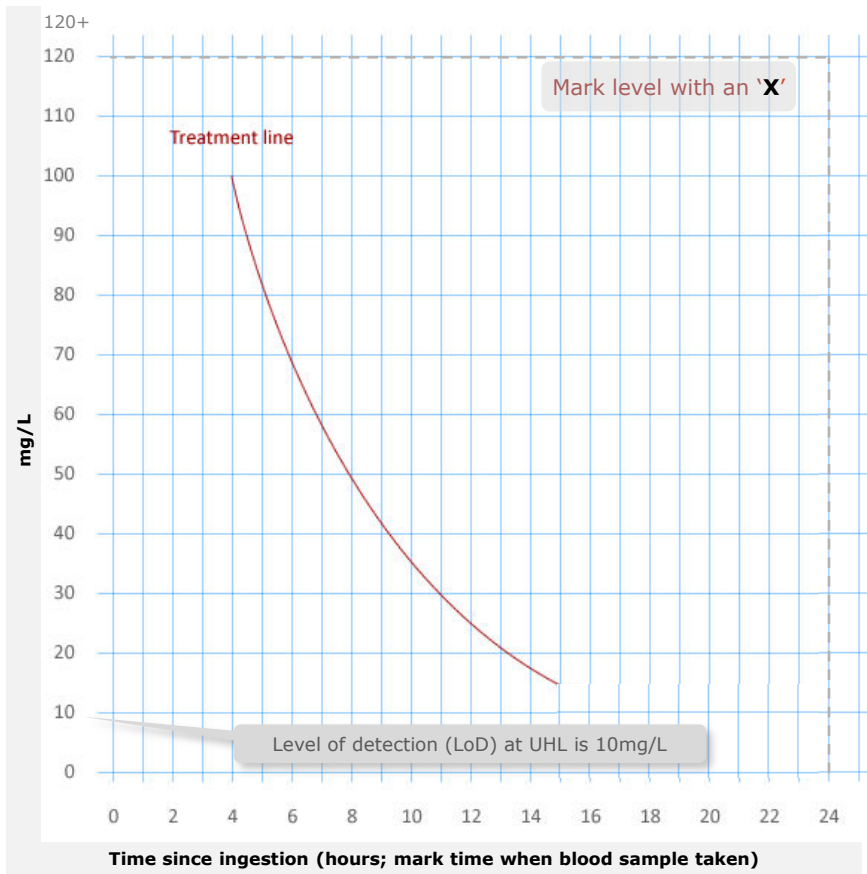
This patient was managed by

Print name

Signature

Role

⑤ Paracetamol plasma level



⑥ Blood results

	initially	post-NAC
Time		
liver unit referral criteria (NB: also include hepatic encephalopathy >grade II)		
pH		<7.3
pCO₂		
Bicarb		
Lactate		>3.5*
Glucose		
* >3 after fluid resuscitation/24h post-ingestion		
Paracetamol		
NB: Patients with paracetamol levels >700mg/L who are also in coma with a high lactate may require haemodialysis alongside NAC; d/w NPIS		
Na		
K		
Urea		
Crea		>300
Bill		
ALT		
Alb		
AP		
WBC		
Hb		
Platelets		
INR		
Prothrombin time		>20

⑦ NAC regimen

- N-Acetylcysteine (NAC) ampoules contain 2G NAC in 10mL (200mg/mL)
- Regimen consists of 2 infusions given consecutively over 12h
- Tick applicable weight range (in pregnancy, here: **ACTUAL** weight)
- To prescribe complete regimen including PRN medicines for any adverse reactions in NC Meds, go to Emergency Medicine (ED) > Antidotes (ED) > N-Acetylcysteine > [select weight range] > **Complete SNAP regimen**
- During Nervecentre downtime, use drug chart as per example in box 8

First infusion (2 hours)
Add required amount of NAC to a 200 mL bag of Glucose 5%

Second infusion (10 hours)
Add required amount of NAC to a 1000mL bag of Glucose 5%

NB: If CBG in diabetics proves difficult to control, go to N-Acetylcysteine as above > [select weight range] > **Repeat 10hr NAC infusions** and select 0.9% NaCl option

Patient weight
(kg)

	Patient weight (kg)	NAC 100mg/kg			NAC 200mg/kg		
		Dose	Volume	Rate	Dose	Volume	Rate
		mg	mL	mL/h	mg	mL	mL/h
40-49	4600	23	112	9000	45	105	
50-59	5600	28	114	11000	55	106	
60-69	6600	33	117	13000	65	107	
70-79	7600	38	119	15000	75	108	
80-89	8600	43	122	17000	85	109	
90-99	9600	48	124	19000	95	110	
100-109	10600	53	127	21000	105	111	
over 109	11000	55	128	22000	110	111	

⑨ NAC adverse reactions

NAC can cause nausea, vomiting, flushing, urticarial rash, angioedema, tachycardia, bronchospasm and, rarely, shock.

Reactions are more likely in female patients, asthmatics, those with a family history of allergies and pts with low paracetamol levels. They are mostly seen when giving the 1st bag.

Reactions often settle when the infusion is simply stopped temporarily; consider chlorphenamine 10mg IV if this is not effective. Add salbutamol 5mg neb if bronchospasm.

Symptom control medications should all be prescribed together with NAC routinely and are therefore included in the NC Meds 'Complete SNAP regimen' order set.

If unsuccessful use anaphylaxis pathway.

NB: Once reaction settled, restart the infusion at the standard rate.

Previous reaction is **NO** contraindication to NAC. If patient reports previous reactions, consider pre-treatment with chlorphenamine 10mg IV. Pre-treat with salbutamol if history of bronchospasm.

⑧ NAC example prescription for use during Nervecentre downtime for 62kg patient as per table in box 7

Date	Infusion fluid		Additions to infusion		IV or SC	Line	Start Time	Time to run or ml/hr	Fluid Batch No.	Prescriber
	Type/strength	Volume	Drug	Dose						
DD/MM/YY	Glucose 5%	200mL	N-Acetylcysteine	6600mg = 33mL	IV		HH:MM	117 mL/h (i.e. runs over 2h)		Dr.'s Name
DD/MM/YY	Glucose 5%	1000mL	N-Acetylcysteine	13000mg = 65 mL	IV		HH:MM	107 mL/h (i.e. runs over 10h)		Dr.'s Name